Rosemary Elliott Smith

Curriculum Vitae

University of Chicago
✉ *relliottsmith@me.com*

Masters of mathematics with interests in smooth dynamics, measure classification theorems, and a (random) assortment of other topics.

Education

2018– **Graduate Student of Mathematics**, *pursing a PhD under the supervision of Alex Eskin and Amie Wilkinson*, University of Chicago.

2014–2018 **Mathematics Major, *cum laude***, *Revelle College*, University of California, San Diego.

2008–2014 **High School**, *Monte del Sol Charter School*, Santa Fe, N.M..

Professional Experience

September 2020– **Instructor**, *Mathematics Department*, University of Chicago.
Instructor of record for undergraduate courses on topics ranging from linear algebra to basic calculus to financial optimization.

September 2019–June 2020 **Graduate Teaching Assistant**, *Mathematics Department*, University of Chicago.
Acted as a teaching assistant to a variety of mathematics courses.

Summer 2019 **Applied Research Mathematician**, *National Security Agency*.
Possessed Top Secret (TS)/Secure Compartmented Information (SCI) security clearance, with background investigation and full scope polygraph. Conducted research on blockchain technologies and crypto currencies.

January 2018–June 2018 **Teaching Assistant**, *Mathematics Department*, UC San Diego.
Acted as a teaching assistant to a variety of mathematics courses.

Summer 2017 **Researcher**, *Collaborative Research Experience for Undergraduates (CURE), Kemp Lab*, UC San Diego.
Researched random matrix theory, free probability, and facets of combinatorics as part of the CURE program. CURE is a program designed to facilitate collaborative mathematics research by undergraduates, better preparing and motivating them for graduate school. Mentor: Todd Kemp, Professor of Mathematics at UC San Diego.

January 2015–December 2017 **Head Database Developer**, *Levantine Cyber-Archeology Lab*, UC San Diego.
Led the development team for the UCSD cyber-archaeological database, under a University of California Office of the President Catalyst Grant. Mentor: Thomas Levy, Distinguished Professor of Anthropology at UC San Diego.

January 2015–June 2018 **Undergraduate Researcher**, *Meyer Lab*, UC San Diego.
Researched the correlations between traditional music and geography using a mathematical lens. Mentor: David Meyer, Professor of Mathematics at UC San Diego.

Summer 2016 **Staff and Lead Programmer**, *Greek Excavation: Cyber-Archeology Field School*, UC San Diego and University of the Aegean.
Led the on-site programming team at the excavation of a Mycenaean tomb in Desfina, Greece. Mentor: Thomas Levy, Distinguished Professor of Anthropology at UC San Diego.

Summer 2015 **REU Researcher**, *The Santa Fe Institute*.
Researched music using complex auditory scene analysis. Mentor: Doctor Tanmoy Bhattacharya, Scientist 5, Los Alamos National Laboratory and External Faculty at Santa Fe Institute.

Publications

Math:

R.E. Elliott Smith. "Uniformly Expanding Random Walks on Manifolds." *Preprint*

Elliott Smith, R.E., H. Huang, T.A. Kemp, Y. Ling, X. Luo, E. Lybrand, and J. Wang. "Random Matrices with Independent Diagonals." *Preprint*.

Other:

Smith, F.A., **R.E. Elliott Smith**, S.K. Lyons, and J.L. Payne. "Body size downgrading of mammals over the late Quaternary." Science 360, no. 6386 (2018): 310-313.

Smith, F.A., **R.E. Elliott Smith**, S.K. Lyons, and A. Villaseñor. The accelerating influence of humans on mammalian macroecological patterns over the late Quaternary Invited manuscript, Quaternary Science Reviews 211, (2019): : 1-16.

Talks

October 2022 **Pizza Seminar**, University of Chicago.
Gerrymandering: What if Geometry had Politics

September 2022 **WOMP 2022**, University of Chicago.
The Mathematician's Terrible, No-Good, Very Bad Example

July 2022 **Graduate Student Summer Seminar**, University of Chicago.
A sketch of the proof of Ratner's Theorem

Service

September 2022– **Seminar Organizer**, University of Chicago.
Co-organized a dynamics proseminar beginning in Fall of 2022.

September 2022 **Orientation Organizer**, University of Chicago.
Co-organized the graduate student orientation in 2022 (WOMP 2022), a week long math-heavy event intended to introduce new students to the department.

Summer 2022 **Seminar Organizer**, University of Chicago.
Co-organized a dynamics student seminar in the summer of 2022

May 2019–September 2021 **Ombudsperson**, University of Chicago.
Elected and served as graduate student ombudsperson for the mathematics department at the University of Chicago for two years. Acted as a liaison between graduate students and faculty, handling issues ranging from minor to serious.

Teaching

Instructor of Record:

Fall 2022 **Math 15250, Mathematical Methods for Economic Analysis**, University of Chicago.

Spring 2022 **Math 195, Linear Algebra**, University of Chicago.

Fall 2021 **Math 153, Calculus 3**, University of Chicago.

Spring 2021 **Math 133, Elementary Functions and Calculus 3**, University of Chicago.

Fall 2020 **Math 131, Elementary Functions and Calculus 1**, University of Chicago.

Teaching Assistant:

Spring 2020 **Accelerated Analysis 3**, University of Chicago, Alex Eskin.

Winter 2020 **Accelerated Analysis 2**, University of Chicago, Beniada Shabani.

Fall 2019 **Number Theory**, University of Chicago, John Boller.

Spring 2018 **Abstract Algebra 2**, University of California, San Diego, Alireza Salehi Golsefidy.

Winter 2018 **Abstract Algebra 2**, University of California, San Diego, Alireza Salehi Golsefidy.

Fall 2017 **Linear Algebra**, University of California, San Diego, Todd Kemp.

Honors and Awards

- GFSP (formally National Physical Sciences Consortium Fellowship) $120,000 (2018-)
- Mathematics Undergraduate Employee of the Year (2018) (for excellence in teaching)
- UCSD Physical Sciences Dean's Undergraduate Award for Excellence, $1000 (2017)
- UCSD Revelle College Norris Award Recipient (2017) (for excellence in the humanities)
- Ernest Mort Revelle Student Leadership Award Recipient (2017)
- United States Presidential Scholar Candidate (2014)
- National Merit Finalist (2014)
- Century Bank Super Scholar (2014)
- Prize for Scientific Excellence, the Santa Fe Institute $500 (2014)
- Los Alamos National Laboratory Employees' Scholarship Fund Bronze Scholar, $4000 (2014)
- AP Scholar with Distinction (2014)
- AP Scholar with Honors (2013)
- Ventures Scholar (2013)
- National Hispanic Recognition Scholar (2013)
- National Honor Society Member (appointed 2013)

Grants

Frontiers of Innovation Scholars Program, Exploring the Basis of Human Knowledge, Learning and Creativity: *Music from a Map; the Relation of Sound Characteristics to Geography.* **R.E. Elliott Smith**, recipient; D. Meyer, mentor. (January, 2016-January, 2017). $4,000.

Frontiers of Innovation Scholars Program, Understanding Cultures and Addressing Disparities in Society: *Greece Expedition.* **R.E. Elliott Smith**, recipient; T. Levy, mentor. (January, 2016-January, 2017). $4,000.

Technical and Personal skills

- **Programming Skills:** Fluent in Java, Python, Ruby, Ruby on Rails, HTML, SQL, and R. I have a functional knowledge of C++, Julia, JavaScript, Matlab, Mathematica, and C.
- **Foreign Languages:** I am passably fluent in Japanese.

- **Interpersonal Skills:** I work well in a team, have extensive leadership experience, and am able to well-articulate and communicate ideas and concepts.
- **Writing Skills:** I am a proficient writer and have written two successful grant proposals.

Interests and extra-curricular activity

- Poetry and Literature: I am a hobbyist poet and an avid reader of classic literature, poetry, fantasy, and philosophy. Among my favorite authors are Ginsberg, Neruda, Kant, and Voltaire.
- Archery: I am a serious student of archery, with a focus in Olympic style target archery. I was a member of the competitive archery team at UCSD.
- Martial Arts: I hold a black belt in Hapkido, a Korean Martial Art, and have acted as Assistant Instructor since summer 2013.